2016 Global Telepathology Enabling Technology Leadership Award
Contents

Industry Challenges ............................................................................................................. 3

Technology Leverage and Customer Impact ..................................................................... 4

Conclusion .......................................................................................................................... 6

Significance of Enabling Technology Leadership ............................................................. 7

Understanding Enabling Technology Leadership ............................................................. 7

Key Benchmarking Criteria ............................................................................................... 8

Best Practice Award Analysis for OptraSCAN ................................................................. 8

Decision Support Scorecard .............................................................................................. 8

Technology Leverage ........................................................................................................ 9

Customer Impact ............................................................................................................... 9

Decision Support Matrix .................................................................................................... 10

Research Methodology ..................................................................................................... 11


About Frost & Sullivan ....................................................................................................... 13
Background and Company Performance

Industry Challenges

Frost & Sullivan research finds that in 2014, the market for the digital pathology systems is around $100.2 million in the United States and $80.1 million in Europe.

Telepathology is altering the way pathology is being rendered. Telepathology ensures rapid consultation, accurate results, faster diagnosis, and reduced turnaround times. With the evolution of telepathology, there is also a greater scope for collaboration between researchers, scientists, and pathologists. Digitizing the workflow gives rise to a paperless environment with less reliance on the microscope and analog processes. There are scanners in the market that can scan about 200,000 slides annually when operated 24/7.

The lack of expert and qualified pathologists also drives the adoption of telepathology in laboratories across the world. Moreover, the workload in many laboratories is estimated to increase by about 8% to 10% each year, and more clinical laboratories are purchasing digital pathology systems to meet the demand. Vendors are selling high throughput scanners to meet the need of the growing workload. It is estimated that most laboratories will switch to digital pathology during a forecast period of 7 years.

However, there is a wide gap between the supply and demand side of the market. As a result, digital pathology is growing at a much slower pace than anticipated. Optical microscopes cost as low as $3000 while digital pathology systems are priced as high as $100,000 and up. This steep price difference is limiting the growth of digital pathology. In this price-sensitive market, it is important to deliver affordable, easy-to-use systems along with quality imaging capabilities. To combat the cost factors, several vendors are also providing slide scanners at an approximate average cost of $35,000. However, add-on costs for additional features or support can hike up the price as high as $100,000.

Unlike the United States, Europe has conducted various interoperability pilot projects with radiology images. The knowledge gained from this research is being leveraged for use in the field of digital pathology. The digital slides database from the COST Action IC0604 EuroTelepath project has been made available to the public, which has proved to be of great help to the academic sector.

In countries such as Norway and Switzerland, virtual and remote-controlled microscopes have been implemented and have been functioning optimally. The images from these systems are transferred using satellite communications. In Switzerland, Integrated Services Digital Network (ISDN) is used to enable remote-controlled and virtual microscopes. The quality of the images thus achieved allows for a sophisticated diagnosis. This method is being adopted in other European countries and significantly impacting the daily work of telepathology programs. Such success stories and European Commission’s encouragement towards telepathology programs will drive the adoption of digital pathology technologies in Europe.
Owing to limited operating budgets, in many countries such as the United Kingdom, France, and Germany there is a strong possibility of hospital and laboratory consolidation. Hospital/laboratory consolidation can not only increase the purchasing power of hospitals and laboratories but also reduce the installation sites for vendors. In the United States, hospital consolidation is at its peak due to the expected reimbursement reductions and changing methodologies and is increasing the demand for greater efficiency. Hospital consolidation will have a significant effect on investments in data management solutions. As a result, cost becomes a huge concern.

There is, however, a growing interest in investing in digital pathology solutions from European and US anatomic pathology laboratories, which is expected to drive and increase the adoption rate.

Technology Leverage and Customer Impact

Commitment to Innovation

Frost & Sullivan has analyzed over 64 vendors that offer different solutions for digital pathology and recognizes OptraSCAN (Optra) for its easy-to-use, cost-effective On-Demand, precision analytical platform. Optra features OptraSCAN™, a suite of telepathology and digital pathology solutions. Although Optra's solutions are intended for Research Use Only, they are developed in compliance with regulatory norms like IEC 62304 and are compatible with Food and Drug Administration (FDA) 510(k)-compliant scanners.

Its cutting-edge solutions for interactive telepathology and digital collaboration comprise the Optra SCAN™, a cloud-enabled whole slide scanner, and its integrated software and data management module: OptraASSAYS™, TELEPath™, CLOUDPath™ and Optra IMAGEPath™. Together, these modules offer a complete suite for transitioning from conventional microscopy to digital pathology. Overall, the OptraSCAN enables seamless integration with its image management system offering excellent connectivity, image reporting, case creation, and storage within the cloud, at a reasonable monthly price. Optra is currently one of very few one-stop shops that provide all the modules required for effective implementation of an automated, cloud-enabled digital pathology workflow.

Price Performance

OptraSCAN™ and its modules effectively address the cost issue associated with the market transition from conventional microscopy to digital pathology. The low (15-slide) and medium (150-slide) throughput whole slide image (WSI) scanners are priced at almost 1/5th the price of many slide scanners in the market. The costs are brought down to as low as $1,950 per month through the On-Demand program. This price includes a complimentary scanner, data storage up to 10 TB, service and telepathology. Today, the market costs for the WSI scanner along with the image modules amount to greater than $100,000. Digital pathology products are extremely price sensitive, especially since the
lifecycle of these slide scanners are close to 4 years. A fine-tuned combination of a strategic pricing model and technology innovation has helped Optra achieve its goal. The ultimate objective for the company is to replace microscopes and switch users to an automated workflow that involves remote consultation and image management and analysis. Frost & Sullivan predicts that the installed base for slide scanners will reach 4655 in the United States and 3574 in Europe by 2019. These estimates comprise of opportunities in the replacement markets and several early adopters of digital pathology that Optra can leverage to establish its installed base count.

Optra will soon be seen partnering with one of the largest pathology networks and several early adopters. The lower pricing model has flourished well and has positively impacted the company in countries like India, where initial investment and securing government funding can be a major obstacle.

Commitment to Creativity

Optra TELEPATH™ features several advantages which facilitate remote pathology. For instance, the solution offers 24x7 remote interpretations. This means that a pathologist located remotely can login to the cloud to analyze and interpret the images without any geographical constraints. This is a quicker and more accurate way to gain experienced second opinions on complicated cases, or where a local pathologist is not available. This telepathology platform is also able to offer interactive services where multiple pathologists can collaborate simultaneously to view an image, thus simulating a multi-headed microscope and for applications like tumor boards. The interface is also enabled with audio chat options. The image viewer can pan and zoom for different magnifications and annotate areas of interest to facilitate a discussion between different users. The platform also allows desktop sharing and viewing in real time for an interactive collaboration experience. Lastly, the reporting module also effectively captures annotated digital images.

Commercialization Success

Within 6 weeks of completing the beta tests for OptraSCAN™, the company received accolades and partnership opportunities from several vendors not only in the digital pathology space but also in adjacent markets, including medical device companies and biomarker firms developing companion diagnostic tests. Its solutions enhance access to expertise and encourage increased collaboration between pathologists, surgeons, scientists, and researchers. Optra looks to bridge the gap between healthcare providers and recipients, and this early success is indicative of the company’s ability to attract capital and boost its competitive advantage.
Conclusion

Frost & Sullivan recognizes OptraSCAN’s ability to offer easy-to-use, cost-effective, cloud-enabled touchscreen-based digital pathology systems at 1/5th the price of competing offerings without compromising image and workflow quality. It is time for telepathology systems to be commoditized, and the future of telepathology demands smaller, sleeker, efficient, and cost-effective products. OptraSCAN and its associated software modules address these market needs.

With its strong overall performance, OptraSCAN has earned Frost & Sullivan’s 2016 Enabling Technology Leadership Award.
Significance of Enabling Technology Leadership

Ultimately, growth in any organization depends upon customers purchasing from your company, and then making the decision to return time and again. In a sense, then, everything is truly about the customer—and making those customers happy is the cornerstone of any long-term successful growth strategy. To achieve these goals through technology leadership, an organization must be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.

Understanding Enabling Technology Leadership

Product quality (driven by innovative technology) is the foundation of delivering customer value. When complemented by an equally rigorous focus on the customer, companies can begin to differentiate themselves from the competition. From awareness, to consideration, to purchase, to follow-up support, best-practice organizations deliver a unique and enjoyable experience that gives customers confidence in the company, its products, and its integrity.
Key Benchmarking Criteria

For the Enabling Technology Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Technology Leverage and Customer Impact—according to the criteria identified below.

**Technology Leverage**
- Criterion 1: Commitment to Innovation
- Criterion 2: Commitment to Creativity
- Criterion 3: Stage Gate Efficiency
- Criterion 4: Commercialization Success
- Criterion 5: Application Diversity

**Customer Impact**
- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

Best Practice Award Analysis for Optra Systems

**Decision Support Scorecard**

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows our research and consulting teams to objectively analyze performance, according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation; ratings guidelines are illustrated below.

**RATINGS GUIDELINES**

The Decision Support Scorecard is organized by Technology Leverage and Customer Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criteria are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.
The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, we have chosen to refer to the other key players as Competitor 2 and Competitor 3.

**DECISION SUPPORT SCORECARD FOR ENABLING TECHNOLOGY LEADERSHIP AWARD**

<table>
<thead>
<tr>
<th>Enabling Technology Leadership</th>
<th>Technology Leverage</th>
<th>Customer Impact</th>
<th>Average Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optra Systems</td>
<td>9</td>
<td>9</td>
<td>9.0</td>
</tr>
<tr>
<td>Competitor 2</td>
<td>7</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td>Competitor 3</td>
<td>7</td>
<td>7</td>
<td>7.0</td>
</tr>
</tbody>
</table>

**Technology Leverage**

**Criterion 1: Commitment to Innovation**
Requirement: Conscious, ongoing adoption of emerging technologies that enables new product development and enhances product performances

**Criterion 2: Commitment to Creativity**
Requirement: Technology is leveraged to push the limits of form and function, in the pursuit of “white space” innovation

**Criterion 3: Stage Gate Efficiency**
Requirement: Adoption of technology to enhance the stage gate process for launching new products and solutions

**Criterion 4: Commercialization Success**
Requirement: A proven track record of taking new technologies to market with a high rate of success

**Criterion 5: Application Diversity**
Requirement: The development and/or integration of technologies that serve multiple applications and can be embraced in multiple environments

**Customer Impact**

**Criterion 1: Price/Performance Value**
Requirement: Products or services offer the best value for the price, compared to similar offerings in the market

**Criterion 2: Customer Purchase Experience**
Requirement: Customers feel like they are buying the most optimal solution that addresses both their unique needs and their unique constraints

**Criterion 3: Customer Ownership Experience**
Requirement: Customers are proud to own the company’s product or service, and have a positive experience throughout the life of the product or service
**Criterion 4: Customer Service Experience**
Requirement: Customer service is accessible, fast, stress-free, and of high quality

**Criterion 5: Brand Equity**
Requirement: Customers have a positive view of the brand and exhibit high brand loyalty

**Decision Support Matrix**
Once all companies have been evaluated according to the Decision Support Scorecard, analysts can then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.

**DECISION SUPPORT MATRIX FOR ENABLING TECHNOLOGY LEADERSHIP AWARD**

![Decision Support Matrix Diagram]

- High Customer Impact
  - High Technology Leverage: Optra Systems
  - Low Technology Leverage: Competitor 2, Competitor 3
The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan’s 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often, companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry players and for identifying those performing at best-in-class levels.
Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan Awards follow a 10-step process to evaluate award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

<table>
<thead>
<tr>
<th>STEP</th>
<th>OBJECTIVE</th>
<th>KEY ACTIVITIES</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monitor, target, and screen</td>
<td>Identify award recipient candidates from around the globe</td>
<td>Pipeline of candidates who potentially meet all best-practice criteria</td>
</tr>
<tr>
<td>2</td>
<td>Perform 360-degree research</td>
<td>Perform comprehensive, 360-degree research on all candidates in the pipeline</td>
<td>Matrix positioning all candidates' performance relative to one another</td>
</tr>
<tr>
<td>3</td>
<td>Invite thought leadership in best practices</td>
<td>Perform in-depth examination of all candidates</td>
<td>Detailed profiles of all ranked candidates</td>
</tr>
<tr>
<td>4</td>
<td>Initiate research director review</td>
<td>Conduct an unbiased evaluation of all candidate profiles</td>
<td>Final prioritization of all eligible candidates and companion best-practice positioning paper</td>
</tr>
<tr>
<td>5</td>
<td>Assemble panel of industry experts</td>
<td>Present findings to an expert panel of industry thought leaders</td>
<td>Refined list of prioritized award candidates</td>
</tr>
<tr>
<td>6</td>
<td>Conduct global industry review</td>
<td>Build consensus on award candidates’ eligibility</td>
<td>Final list of eligible award candidates, representing success stories worldwide</td>
</tr>
<tr>
<td>7</td>
<td>Perform quality check</td>
<td>Develop official award consideration materials</td>
<td>High-quality, accurate, and creative presentation of nominees’ successes</td>
</tr>
<tr>
<td>8</td>
<td>Reconnect with panel of industry experts</td>
<td>Finalize the selection of the best-practice award recipient</td>
<td>Decision on which company performs best against all best-practice criteria</td>
</tr>
<tr>
<td>9</td>
<td>Communicate recognition</td>
<td>Inform award recipient of award recognition</td>
<td>Announcement of award and plan for how recipient can use the award to enhance the brand</td>
</tr>
<tr>
<td>10</td>
<td>Take strategic action</td>
<td>Upon licensing, company may share award news with stakeholders and customers</td>
<td>Widespread awareness of recipient's award status among investors, media personnel, and employees</td>
</tr>
</tbody>
</table>
About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best in class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages almost 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from 31 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.